Remarks

I. Status of claims

Claims 1-20 were pending.

Claims 21-30 have been added.

II. Claim rejections

A. Claims 1-8

Claims 1-4

The Examiner has rejected claims 1-4 under 35 U.S.C. § 103(a) over Wyman (U.S. 2003/0112347) in view of Voss (U.S. 2003/0147640).

Claim 1 includes the steps of storing the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, and processing the video frames stored in the memory using a video pipeline.

Wyman summarizes his approach as follows (¶ [0028]):

> In the preferred embodiment, the camera has multiple modes of operation, one of which is a motion video mode, during which still images are buffered. When operating in this mode, the camera records motion video on an appropriate motion video recording medium, at a resolution appropriate for motion video, i.e., a relatively low resolution. Concurrently, video frames captured by sensor 103 are temporarily held frame buffer 204 at a higher resolution than the recording resolution for motion video, which resolution is appropriate for still images. Buffer 204 holds only a limited number of images, and as more images are captured by the sensor, previously captured images in buffer 204 are aged, and eventually overwritten. In the time interval before a frame in buffer 204 is overwritten by a more recent frame, the user may take some action to save the frame as a still image. The saved still image thus has a higher resolution than the recorded motion video, and it is therefore possible to have both the capability for high quality still images and reasonable storage capacity for motion video.

In Wyman's approach, only frame buffer 204 may store "high resolution still images in raw format," as recited in claim 1 (see ¶ [0059]). Wyman's system, however, does not process any of the high resolution frames that are stored in frame buffer 204 using a video pipeline as recited in claim 1. Instead, Wyman's system merely gives the user the option of saving or transferring selected frames stored in the buffer 204 (see ¶¶ [0055] and [0056]). The only detailed teaching in Wyman regarding the process of saving or transferring the image frames stored in buffer 204 is as follows (¶ [0056]):

> In the preferred embodiment, frames are saved by transferring the frame to an external device. This external device may be a general purpose digital computer having appropriate video software installed, whereby it can save, edit, print, and transfer, video images. Alternatively, the external device could be a special-purpose video storage device, such as a DVD, CD-ROM, or VTR having still frame recording capability. However, it would also be possible to save frames to an on-board storage medium, and saving frames to an on-board storage medium could be offered as one of multiple options to the user, or could be the exclusive method of saving frames. The on-board storage medium could be storage medium 110 used for storing motion video, or could be a separate medium such as a flash semiconductor memory "stick" (not shown).

This teaching, however, does not even hint that the high resolution frames stored in buffer 204 are processed using a video pipeline. In fact, there is no teaching or suggestion whatsoever in Wyman that would have led one of ordinary skill in the art at the time of the invention to process the high resolution frames stored in buffer 204 using a video pipeline, as recited in claim 1. Indeed, there would not have been any motivation for one of ordinary skill in the art to process the image frames stored in buffer 204 using a video pipeline because an entire video frame sequence corresponding to the frames stored in buffer 204 already is stored on the motion video recording media 110 (see ¶ [0030]). That is, processing the frames stored in buffer 204 using a video pipeline merely would produce a duplicate copy of a corresponding video frame sequence that is stored automatically on recording media 110.

The Examiner has asserted that (emphasis added):

> Wyman discloses the limitation of "processing with low priority the video frames stored in the memory using a video pipeline; and" in the following:
>
> <u>The frame is then converted to motion video format and written to the motion video media</u>. Specifically, motion video format

> implies that the frame is converted to a lower pixel resolution. It may additionally be compressed using any appropriate compression algorithm (paragraph [0042], lines 9-14). {Converting and compressing the video frames are interpreted as "processing" the video frames}.

The motion video media 110, however, is not the same memory as the frame buffer 204 where "high resolution still images are stored in raw format during acquisition of the high resolution still images in burst mode," as recited in claim 1. Therefore, the above-quoted section of Wyman cited by the Examiner does not teach or suggest anything about using a video pipeline to process the video frames that are stored with high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, as recited in claim 1.

In Voss's approach, video data is stored on tape media 135 in a normal mode of operation, whereas high-resolution still image data is stored in burst mode memory 140 in a burst mode of operation. Voss, however, does not teach or suggest anything that would have led one of ordinary skill in the art to process the high-resolution still image data stored in burst memory 140 using a video pipeline. Therefore, Voss fails to make up for Wyman's failure to teach or suggest the method of claim 1 that includes the steps of storing the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, and processing the video frames stored in the memory using a video pipeline.

For at least these reasons, the Examiner's rejection of independent claim 1 under 35 U.S.C. § 103(a) over Wyman in view of Voss should be withdrawn.

Claims 2-4 incorporate the features of independent claim 1 and therefore are patentable over Wyman and Voss for at least the same reasons.

Dependent claim 5

The Examiner has rejected claim 5 under 35 U.S.C. § 103(a) over Wyman in view of Voss and Matsumoto (U.S. 2003/0052986).

Claim 5 incorporates the features of independent claim 1. The Examiner has cited Matsumoto merely for his disclosure of:

> The still image codec unit includes a JPEG encoder for generating JPEG still image data by executing a JPEG

> compression process for still image data obtained by the camera unit and image processing unit ...
>
> The moving image codec unit includes an MPEG encoder for generating MPEG moving image data by executing an MPEG compression process for moving image data obtained by the camera unit and image processing unit ...

Matsumoto, however, does not make up for the failure of Wyman and Voss to teach or suggest the invention of claim 1 that includes the steps of storing the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, and processing the video frames stored in the memory using a video pipeline. Therefore, claim 5 is patentable over Wyman in view of Voss and Matsumoto for at least the same reasons explained above in connection with claim 1.

Dependent claims 6-8

The Examiner has rejected claims 6-8 under 35 U.S.C. § 103(a) over Wyman in view of Voss and Bittner (U.S. 6,330,400).

Each of claims 6-8 incorporates the features of independent claim 1. The Examiner has cited Bittner merely for his disclosure of an ASIC "structured to perform the desired image processing functions including, but not limited to: 1. Demosaic; 2. Color correction, compensation and other image quality; ... 7. Image compression." Bittner, however, does not make up for the failure of Wyman and Voss to teach or suggest the method of claim 1 that includes the steps of storing the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, and processing the video frames stored in the memory using a video pipeline.

Accordingly, the Examiner's rejection of claims 6-8 under 35 U.S.C. § 103(a) over Wyman in view of Voss and Bittner should be withdrawn for at least the same reasons explained above in connection with claim 1.

B. Claims 9-16

Claims 9-10 and 12-14

The Examiner has rejected claims 9-10 and 12-14 under 35 U.S.C. § 103(a) over Wyman in view of Voss.

Claim 9 recites a joint video and still image pipeline that includes a sensor controller capable of storing with high priority the video frames and high resolution still images acquired during the burst mode in raw format into a memory, and one or more processors capable of concurrently processing with low priority the video frames and the high resolution still images acquired during the burst mode, wherein the video frames are processed using a video pipeline.

As explained above in connection with independent claim 1, in Wyman's approach, only frame buffer 204 may store "high resolution still images in raw format," as recited in claim 1 (see ¶ [0059]). Wyman's system, however, does not process any of the high resolution frames that are stored in frame buffer 204 using a video pipeline as recited in claim 9. Moreover, there is no teaching or suggestion in Wyman that would have led one of ordinary skill in the art at the time of the invention to process the high resolution frames stored in buffer 204 using a video pipeline, as recited in claim 9. Indeed, there would not have been any motivation for one of ordinary skill in the art to process the image frames stored in buffer 204 using a video pipeline because an entire video frame sequence corresponding to the frames stored in buffer 204 already is stored on the motion video recording media 110 (see ¶ [0030]). That is, processing the frames stored in buffer 204 using a video pipeline merely would produce a duplicate copy of a corresponding video frame sequence that is stored automatically on recording media 110.

Similarly, in Voss's approach, video data is stored on tape media 135 in a normal mode of operation, whereas high-resolution still image data is stored in burst mode memory 140 in a burst mode of operation. Voss, however, does not teach or suggest anything that would have led one of ordinary skill in the art to process the high-resolution still image data stored in burst memory 140 using a video pipeline. Therefore, Voss fails to make up for Wyman's failure to teach or suggest the joint video and still image pipeline of claim 9 that includes a sensor controller capable of storing with high priority the video frames and high

resolution still images acquired during the burst mode in raw format into a memory, and one or more processors capable of concurrently processing with low priority the video frames and the high resolution still images acquired during the burst mode, wherein the video frames are processed using a video pipeline.

For at least these reasons, the Examiner's rejection of independent claim 9 under 35 U.S.C. § 103(a) over Wyman in view of Voss should be withdrawn.

Claims 10 and 12-14 incorporate the features of independent claim 9 and therefore are patentable for at least the same reasons explained above.

Dependent claim 11

The Examiner has rejected claim 11 under 35 U.S.C. § 103(a) over Wyman in view of Voss and Matsumoto.

Claim 11 incorporates the features of independent claim 9. The Examiner has cited Matsumoto merely for his disclosure of:

> The still image codec unit includes a JPEG encoder for generating JPEG still image data by executing a JPEG compression process for still image data obtained by the camera unit and image processing unit ...
>
> The moving image codec unit includes an MPEG encoder for generating MPEG moving image data by executing an MPEG compression process for moving image data obtained by the camera unit and image processing unit ...

Matsumoto, however, does not make up for the failure of Wyman and Voss to teach or suggest the invention of claim 9 that includes a sensor controller capable of storing with high priority the video frames and high resolution still images acquired during the burst mode in raw format into a memory, and one or more processors capable of concurrently processing with low priority the video frames and the high resolution still images acquired during the burst mode, wherein the video frames are processed using a video pipeline. Therefore, claim 11 is patentable over Wyman in view of Voss and Matsumoto for at least the same reasons explained above in connection with claim 9.

Dependent claims 15 and 16

The Examiner has rejected claims 15 and 16 under 35 U.S.C. § 103(a) over Wyman in view of Voss and Bittner.

Each of claims 15 and 16 incorporates the features of independent claim 9. The Examiner has cited Bittner merely for his disclosure of an ASIC "structured to perform the desired image processing functions including, but not limited to: 1. Demosaic; 2. Color correction, compensation and other image quality; ... 7. Image compression." Bittner, however, does not make up for the failure of Wyman and Voss to teach or suggest the invention of claim 9 that includes a sensor controller capable of storing with high priority the video frames and high resolution still images acquired during the burst mode in raw format into a memory, and one or more processors capable of concurrently processing with low priority the video frames and the high resolution still images acquired during the burst mode, wherein the video frames are processed using a video pipeline.

Accordingly, the Examiner's rejection of claims 15 and 16 under 35 U.S.C. § 103(a) over Wyman in view of Voss and Bittner should be withdrawn for at least the same reasons explained above in connection with claim 9.

C. Claims 17-20

Claims 17-19

The Examiner has rejected claims 17-19 under 35 U.S.C. § 103(a) over Wyman in view of Voss.

Claim 17 includes instructions for storing the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, and processing the video frames stored in the memory using a video pipeline.

As explained above in connection with independent claim 1, in Wyman's approach, only frame buffer 204 may store "high resolution still images in raw format," as recited in claim 17 (see ¶ [0059]). Wyman's system, however, does not process any of the high resolution frames that are stored in frame buffer 204 using a video pipeline as recited in claim 17. Moreover, there is no teaching or suggestion in Wyman that would have led one of

ordinary skill in the art at the time of the invention to process the high resolution frames stored in buffer 204 using a video pipeline, as recited in claim 17. Indeed, there would not have been any motivation for one of ordinary skill in the art to process the image frames stored in buffer 204 using a video pipeline because an entire video frame sequence corresponding to the frames stored in buffer 204 already is stored on the motion video recording media 110 (see ¶ [0030]). That is, processing the frames stored in buffer 204 using a video pipeline merely would produce a duplicate copy of a corresponding video frame sequence that is stored automatically on recording media 110.

Similarly, in Voss's approach, video data is stored on tape media 135 in a normal mode of operation, whereas high-resolution still image data is stored in burst mode memory 140 in a burst mode of operation. Voss, however, does not teach or suggest anything that would have led one of ordinary skill in the art to process the high-resolution still image data stored in burst memory 140 using a video pipeline. Therefore, Voss fails to make up for Wyman's failure to teach or suggest the joint video and still image pipeline of claim 17 that includes instructions for storing the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, and processing the video frames stored in the memory using a video pipeline.

For at least these reasons, the Examiner's rejection of independent claim 17 under 35 U.S.C. § 103(a) over Wyman in view of Voss should be withdrawn.

Dependent claims 18 and 19 incorporate the features of independent claim 17 and therefore are patentable over Wyman and Voss for at least the same reasons.

Dependent claim 20

The Examiner has rejected claim 20 under 35 U.S.C. § 103(a) over Wyman in view of Voss and Matsumoto.

Claim 20 incorporates the features of independent claim 17. The Examiner has cited Matsumoto merely for his disclosure of:

> The still image codec unit includes a JPEG encoder for generating JPEG still image data by executing a JPEG compression process for still image data obtained by the camera unit and image processing unit ...

> The moving image codec unit includes an MPEG encoder for generating MPEG moving image data by executing an MPEG compression process for moving image data obtained by the camera unit and image processing unit ...

Matsumoto, however, does not make up for the failure of Wyman and Voss to teach or suggest the invention of claim 17 that includes instructions for storing the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, and processing the video frames stored in the memory using a video pipeline. Therefore, claim 20 is patentable over Wyman in view of Voss and Matsumoto for at least the same reasons explained above in connection with claim 17.

III. Conclusion

For the reasons explained above, all of the pending claims are now in condition for allowance and should be allowed.

Charge any excess fees or apply any credits to Deposit Account No. 08-2025.

Respectfully submitted,

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